AP Biology, Semester 2
Unit Quiz: Ecology
Instructor Version

Section I: Multiple-Choice Questions

Answer Sheet

1.	D
2.	C
3.	E
4.	B
5.	A
6.	D
7.	B
8.	C
9.	A
10.	A

11.	C
12.	C
13.	C
14.	D
15.	C
16.	A
17.	B
18.	C
19.	D
20.	D

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Full Name_____ **User Name** _____ **Date:** _____
(print clearly)

Section II: Free-Response Questions

Time Limit: You have 30 minutes to complete this section. Both questions are weighted equally, so allow around 15 minutes for each question. You may move back and forth between questions until time is called.

Scoring: 20 points each, 40 points total

Directions: Answer each of the questions in essay form. Outline form is not acceptable. Labeled diagrams may be used to supplement your answer, but a diagram alone is insufficient. Read each question carefully before you begin to write your answer.

1. **Some biomes show the importance of the adaptation of organisms while others provide many examples of diversity. Discuss this statement with emphasis on deserts and tropical rainforests.**

   ANSWER:

   Organisms have a constant need to maintain the level of fluids in their cells. For this reason, desert organisms are at a disadvantage: extremes of temperature; hot, dry daytime temperatures; direct exposure to the sun's rays; and an often inhospitable rocky terrain all make it difficult for organisms to survive without drying out. On the other hand, rainforest ecosystems are subject to very small temperature fluctuations both diurnally and throughout the year. The growth of rainforest plants provides a canopy shielding most rainforest organisms from direct sunlight, and high levels of rainfall throughout the year produce a moist, humid environment in which organisms can flourish.

   Desert organisms have become highly adapted to survive in these harsh ecosystems. Plants are thick-skinned, with few stomata to allow water loss through transpiration. Many animals rest during the day and are active during the cooler nighttime hours. Animals active during the daytime are often cold-blooded animals like lizards and snakes that use the sun's energy to heat up their bodies so they can become active. There are relatively few animals in a desert ecosystem, and some, like fish and amphibians, are only found in waterholes and oases. If you stand in a desert, you'll probably see and hear very little animal life. You'll also see relatively few species of plants.

   Rainforests are regions of great diversity of animal and plant life. About 95% of the world's animal and plant species are found in tropical rainforests. The high moisture levels, equable temperatures, and filtered sunlight provide an environment that is ideal for many kinds of organisms to grow and evolve. Stand in a tropical rainforest and you'll see and hear an enormous variety of animal life, from insects and amphibians to birds and mammals. Plant life is so diverse that the forests are compartmentalized, with different kinds of plants living from ground level up to the highest tree tops that emerge from the rainforest canopy.

2. Since the Industrial Revolution, humans have had an enormous impact on the global ecosystem. We have released chemicals into the atmosphere that have caused tremendous damage. We have caused many organisms to become threatened, endangered, or extinct.

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A. How are humans polluting our ecosystems? What affects do these pollutants have?

ANSWER:

ACTION	Chemicals released	Result
Burning of fossil fuels	carbon monoxide, carbon dioxide, nitric oxide, sulfur dioxide, hydrocarbons	Photochemical smog
	carbon dioxide, sulfur dioxide, nitric oxide	Acid rain
	nitric oxide, hydrocarbons	Production of ozone at ground level
	carbon dioxide	Global warming
Release of chlorofluorocarbons	chloride ions in stratosphere	Ozone holes
Use of excess fertilizers and discharge of agricultural waste into bodies of water	excess nitrates and phosphates	Eutrophication
Discharging of waste into bodies of water	trash, sewage, mining and industrial wastes including: radioactive material, toxic chemicals, disease-causing agents	Health hazards

B. How are humans destroying the biodiversity of Earth? What can be done to save threatened and endangered species?

ANSWER:

ACTION	RESULT
Habitat destruction	Organisms have no suitable place to live.
Overexploitation	Organisms cannot reproduce fast enough to replace the number of organisms killed by fishing or hunting.
Introduction of exotic species	Native species threatened by an exotic species that can: • outcompete native species for food. • kill native species as prey.

To save threatened and endangered species	• Identify source populations and help them to grow • Set up habitat reserves • Enact and enforce laws against excessive fishing and hunting • Education on importance of biodiversity • Protect “hot spots” for biodiversity from habitat destruction

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